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## STANDARD CHLORINE OF DELAWARE, INC.

GOVERNOR LEA ROAD • P.O BOX 319 • DELAWARE CITY, DELAWARE 19706

April 20, 1993

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STATE OF DELAWARE  
DNREC SUPERFUND BRANCH

Ms. Anne Hiller  
Environmental Scientist  
DNREC  
715 Grantham Lane  
New Castle, DE 19720

100408

Dear Ms. Hiller:

In accordance with Paragraph 6 of the Consent Order between Standard Chlorine of Delaware, Inc. and the Delaware Department of Natural Resources and Environmental Control, we are hereby submitting the Twenty-First Quarterly Groundwater Monitoring Report for the period January 1 through March 31, 1993.

Feel free to contact me should there be any questions.

Sincerely,



Paul Johnston  
Manager, Environmental

PJ/dm  
Enclosure

cc: R. J. Touhey  
T. E. Pierson

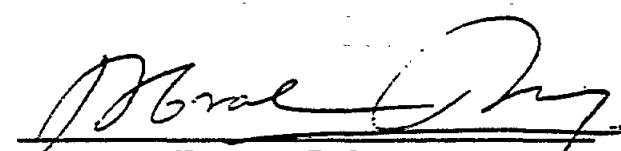
Anne

For your files To  
accompany report hand  
delivered in our meeting  
of 4-20

Thanks Paul  
AR308038

**QUARTERLY MONITORING REPORT  
GROUNDWATER RECOVERY SYSTEM OPERATIONS**

**STANDARD CHLORINE OF DELAWARE, INC.  
DELAWARE CITY, DELAWARE**



**Abraham Thomas, P.G.  
Project Director**

**20 APRIL 1992**

**Prepared By:**

**ROY F. WESTON, INC.  
WESTON WAY  
WEST CHESTER, PENNSYLVANIA 19380**

**AR308039**

**QUARTERLY MONITORING REPORT  
GROUNDWATER RECOVERY SYSTEM OPERATION  
STANDARD CHLORINE OF DELAWARE, INC.  
DELAWARE CITY, DELAWARE**

20 April 1993

This quarterly report has been prepared to document the activities associated with the groundwater recovery program at the Standard Chlorine of Delaware, Inc. (SCD), Delaware City, Delaware facility. This report has been prepared in accordance with the 22 January 1988 Consent Order between the Delaware Department of Natural Resources and Environmental Control (DNREC) and SCD. Included in this report are the results of quarterly groundwater sampling of site monitor and recovery wells, and a summary of the monthly groundwater withdrawal rates and contaminant recovery at the recovery wells. Water level data for the recovery and monitoring wells for this quarter are also presented herein. Additionally, modifications and maintenance activities performed during this period, and an evaluation of the recovery well system performance and recommendations are presented in this report. The documentation presented in this report covers the quarterly period from January through March 1993.

**Recovery System Modifications and Maintenance**

A review of system maintenance reports provided by SCD shows that for the months of January, February, and March nearly continuous groundwater withdrawal occurred at recovery wells RW-1 and RW-4. Recovery wells RW-1 and RW-4 were not pumping for approximately two days in February and one day in March due to plant maintenance activities. Recovery well RW-2 was not pumping during this quarterly period due to pump failure. A leak in the discharge line of RW-3 caused the well to be taken off line on 4 February 1993 for the remainder of February and the entire month of March. A treatment system upset caused recovery well RW-5 to be off line for the month of January and a portion of February. The well was put back on line on 11 February. The total down time for recovery well RW-5 during the month of March 1993 is approximately 6.5 days and is attributable to system maintenance.

Due to a totalizer malfunction at recovery well RW-5, the flow rate has been estimated at 5 gpm for the performance period in February and March 1993.

**Recovery System Performance**

The overall influence of pumping at the site, and the effectiveness of the recovery system at the time of data collection are very limited. As shown in Figure 1, the influence on groundwater levels from pumping is most noticeable in the areas of recovery wells RW-1

## Quarterly Monitoring Report (Continued)

and RW-4, which is consistent with recent quarterly monitoring data. The effectiveness of the recovery well system with two wells not pumping (RW-2 and RW-3) is limited to the areas surrounding recovery wells RW-1 and RW-4.

The average monthly withdrawal rates for recovery wells RW-1 through RW-5 are presented on Table 1. The number of days that each of the wells were not pumping during each month is also indicated on Table 1. The average monthly withdrawal rates represent the average flow rate for each of the wells for the days during the month that the wells were actually pumping. The flow rates at recovery well RW-1 and RW-4 for this quarter are similar to the rates reported for the last two months of the fourth quarter of 1992. The average withdrawal rate at recovery well RW-3 during the month of January and the beginning of February, before the well was taken off line, was similar to rates from the fourth quarter of 1992. As previously mentioned, RW-2 was inactive for the entire quarter due to pump failure. Flow rates for RW-5 for the operating periods in February and March are estimated at 5 gpm. This rate is similar to withdrawal rates recorded in the first two quarters of 1992 when the well was last pumping.

A complete round of depth-to-water measurements from the site monitoring wells and recovery wells was obtained on 24 March 1993 and is presented in Table 2. Due to pump failure and discharge line malfunction, recovery wells RW-2 and RW-3 were not pumping on this date. A water table elevation contour map was prepared using water level data obtained on 24 March and is presented on Figure 1. An error in the recording of the depth-to-water measurement occurred at monitor well MW-3 during this quarter. As a result of this erroneous reading, the depth-to-water measurement for MW-3 could not be used in the preparation of the water table elevation contour map.

The quarterly groundwater sampling of the monitor and recovery wells at the site was performed on 11 March. Table 3 presents the total benzene species concentrations from groundwater samples obtained from the site recovery wells and monitor wells. The individual benzene species analysis for these recovery and monitor wells is presented in Table 4. The data presented on Table 3 were used to prepare an isoconcentration map (see Figure 2) of the total benzene species from the 11 March 1993 sampling of the site monitor wells and recovery wells. The total benzene species (TBS) concentrations reported for site monitor and recovery wells are, in general, comparable to data from the last quarter of 1992. The notable exceptions include the detection of free organics at TW-7 for this quarter as compared to a concentration of 24.23 mg/L for the previous quarter. Previous quarter monitoring data showed free product at monitoring wells TW-5 and TW-28, as compared to concentrations of 137.94 mg/L and 264.98 mg/L for the respective monitoring wells during this quarter. Total benzene species at recovery wells

## Quarterly Monitoring Report (Continued)

RW-2 and RW-3 were not determined for this quarter because the wells were not operational and could not be sampled.

The summaries of groundwater and contaminant recovery for each of the recovery wells RW-1 through RW-5 are presented in Tables 5 through 9, respectively. Each table presents the monthly and cumulative groundwater and contaminant recovery for each well. The total system monthly and cumulative results are presented in Table 10. As shown on Table 10, operation of the site groundwater extraction system through March 1993 has resulted in the recovery of an estimated 48,742.6 kilograms of contaminants.

### Recommendations

- Necessary repairs should be made at RW-2 in order to reactivate this well and an assessment should be made regarding the need for well rehabilitation.
- Necessary repairs should be made at RW-3 in order to reactivate this groundwater recovery well.
- Necessary repairs should be made to the totalizer at RW-5.

TABLE 1  
**AVERAGE MONTHLY WITHDRAWAL RATES (GPM)**  
**GROUNDWATER RECOVERY WELL SYSTEM**  
**STANDARD CHLORINE OF DELAWARE, INC.**

Month 1993	RW-1	RW-2	RW-3	RW-4	RW-5
January PD-0.0 day	40.2 PD-31 days	0.0 PD-0.0 days	22.7 PD-0.0 days	56.5 PD-0.0 days	0.0 PD-31 days
February PD-2.0 day	42.5 PD-28 day	0.0 PD-24.5 days	26.0 PD-2.0 day	65.8 PD-2.0 day	5.0* PD-10 days
March PD-1.0 day	44.6 PD-31 days	0.0 PD-31 day	0.0 PD-1.0 day	64.0 PD-1.0 day	5.0* PD-6.5 days

PD - Pump Down (Rounded to nearest 0.5 day)

\* - Estimated withdrawal rate

**TABLE 2**  
**GROUNDWATER LEVEL DATA**

**STANDARD CHLORINE OF DELAWARE, INC.**  
**24 March 1993**

Location	Measuring Point Elevation (ft. MSL)	Depth to Water (ft.)	Groundwater Elevation (ft. MSL)
TW-1	44.80	32.28	12.52
TW-2	53.74	41.80	11.94
TW-3	53.46	42.34	11.12
TW-4	52.61	42.18	10.43
TW-5	47.91	35.96	11.95
TW-6A	48.08	37.44	10.64
TW-7	47.27	36.98	10.29
TW-8	51.14	39.78	11.36
TW-10	49.60	39.36	10.24
TW-22	51.23	42.20	9.03
TW-24	48.07	40.68	7.39
TW-25	48.12	38.26	9.86
TW-28	51.39	44.18	7.21
TW-30	50.94	42.14	8.80
TW-31	49.28	38.98	10.30
TW-49	54.45	50.14	4.31
TW-50	52.87	48.40	4.47
TW-60	45.17	40.20	4.97
TW-61	44.23	39.58	4.65
TW-62	47.64	43.12	4.52
TW-63	52.55	48.26	4.29
TW-64	52.21	45.98	6.23
MW-1	49.46	38.00	11.46
MW-2	48.35	44.60	3.76
MW-3	50.23	40.38	9.85
MW-4	55.22	50.50	4.72
MW-5	25.36	21.24	4.12
MW-6	51.43	47.00	4.43
MW-7	48.92	45.10	3.82
MW-8	43.22	38.30	4.92
MW-9	47.45	40.70	6.75
RW-1	53.52	54.08	-0.56
RW-2	51.77	47.00	4.77
RW-3	44.32	39.92	4.40
RW-4	46.84	49.38	-2.54
RW-5	47.72	36.90	10.82

**TABLE 3**  
**QUARTERLY SAMPLING RESULTS**  
**MONITOR AND RECOVERY WELLS**  
**STANDARD CHLORINE OF DELAWARE, INC.**  
**11 March 1993**

Location	Total Benzene Species Concentration (mg/L)
TW-1	7.19
TW-2	0.10
TW-3	0.06
TW-4	0.02
TW-5	137.94
TW-6A	13.16
TW-7	*
TW-8	180.77
TW-10	21.05
TW-22	0.10
TW-24	6.97
TW-25	19.05
TW-28	264.98
TW-30	*
TW-31	239.79
TW-49	267.19
TW-50	253.36
RW-1	26.59
RW-2	**
RW-3	**
RW-4	21.87
RW-5	180.57

\* Free organics in well.

\*\* Sample not collected.

TABLE 4

WATER QUALITY DATA - INDIVIDUAL BENZENE SPECIES  
 Monitor and Recovery Wells  
 Standard Chlorine of Delaware, Inc.  
 11 March 1993

Well	pH	C6H6	MONO	PARA	META	ORTHO	135	124	123	NB	1245	MCNB	2,4-DCNB	PENTA	HEXA	TOTAL	
TW-1	6.50	<0.05	6.56	0.39	<0.10	<0.10	<0.010	0.24	<0.010	<0.015	<0.010	<0.020	<0.015	<0.010	<0.010	7.19	
TW-2	6.00	0.005	0.01	0.02	<0.010	<0.010	<0.010	0.07	<0.010	<0.015	<0.010	<0.020	<0.015	<0.010	<0.010	0.10	
TW-3	6.07	<0.005	0.01	0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.015	<0.010	<0.020	<0.015	<0.010	<0.010	0.06	
TW-4	6.30	<0.005	<0.005	0.01	<0.010	<0.010	<0.010	0.01	<0.010	<0.015	<0.010	<0.020	<0.015	<0.010	<0.010	0.02	
TW-5	6.80	2.42	63.78	11.46	<2.00	52.74	<0.010	6.76	0.65	<0.015	0.05	0.08	<0.020	<0.015	<0.010	137.94	
TW-6A	6.68	<0.25	1.53	3.18	<0.50	8.06	<0.010	0.32	0.04	<0.015	0.02	0.01	<0.020	<0.015	<0.010	13.16	
TW-7	FREE ORGANICS																
TW-8	6.20	25.74	37.91	9.00	<2.00	63.01	<0.010	3.94	1.00	<0.015	0.04	0.13	<0.020	<0.015	<0.010	180.77	
TW-10	7.95	<0.25	1.72	16.66	<0.50	2.00	<0.010	0.44	0.16	<0.015	0.01	0.06	<0.020	<0.015	<0.010	21.05	
TW-22	8.40	<0.005	0.04	0.01	<0.10	0.02	<0.010	0.03	<0.010	<0.015	<0.010	<0.020	<0.015	<0.010	<0.010	0.10	
TW-24	5.90	0.03	0.02	0.71	<0.010	6.00	<0.010	0.16	0.03	<0.015	<0.010	0.02	<0.020	<0.015	<0.010	6.97	
TW-25	6.80	<0.12	0.33	1.10	<0.25	14.50	<0.010	2.66	0.14	<0.015	0.03	0.15	<0.020	<0.015	0.04	<0.010	19.05
TW-28	3.93	57.15	110.27	354.5	<2.00	55.63	<0.010	4.61	1.55	<0.015	0.14	0.16	<0.020	<0.015	0.02	<0.010	264.98
TW-30	FREE ORGANICS																
TW-31	6.21	106.02	81.81	27.48	<2.00	20.05	<0.010	3.92	0.18	0.18	0.06	0.09	<0.020	<0.015	<0.010	239.79	
TW-49	4.40	61.07	104.05	44.79	<2.00	44.59	<0.07	9.63	1.25	<0.015	1.17	0.60	<0.020	<0.015	0.04	<0.010	267.19
TW-50	7.50	103.96	94.22	29.93	<2.00	21.72	<0.010	2.67	0.09	0.54	0.17	0.05	<0.020	<0.015	<0.010	<0.010	253.36
RW-1	5.63	3.88	5.15	7.93	<0.50	3.93	<0.010	4.18	1.24	<0.015	0.11	0.16	<0.020	<0.015	0.01	<0.010	26.59
RW-2	SAMPLE NOT COLLECTED																
RW-3	SAMPLE NOT COLLECTED																
RW-4	4.57	1.06	3.21	5.18	<2.00	10.68	<0.010	0.90	0.37	0.20	0.08	0.06	0.13	<0.015	<0.010	<0.010	21.87
RW-5	4.30	3.72	125.54	5.09	<2.00	31.84	<0.02	8.89	1.67	<0.015	1.08	2.13	<0.020	<0.015	0.60	0.01	180.57

## Legend

ORTHO - Orthodichlorobenzene  
 MONO - Monochlorobenzene  
 PARA - Parachlorobenzene  
 135 - 135 Trichlorobenzene  
 MCNB - Metachlorobenzene  
 NB - Nitrobenzene  
 1234 - 1234 Tetrachlorobenzene  
 PENTA - Pentachlorobenzene  
 124 - 124 Trichlorobenzene  
 2,4-DCNB - 2,4-Dichloronitrobenzene

All concentrations in mg/L

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**Table 6**  
**Monthly and Cumulative Monitor Well Pumpage**  
**and Contaminant Recovery**

**Recovery Well RW-1**

Month	Average Monthly Pumping Rate (GPM)	Total Monthly Pumpage (gallons)	Average Monthly Concentrations			Total Benzene Species Recovered (kilograms)	Cumulative Total Benzene Species Recovered (kilograms)
			Total Benzene Species (mg/l) **	Monthly Total Recovered (kilograms)	Total Benzene Species		
January	24.3	1065891	31.388	33.16	33.16	136.3	6,652.6
February	23.6	987191	32.375	33.16	33.16	123.9	6,776.6
March	22.6	1009847	33.385	33.16	33.16	126.8	6,903.3
April	24.6	651688	34.237	32.66	32.66	105.3	7,008.6
May	24.0	1004025	35.241	32.66	32.66	124.1	7,132.7
June	25.0	1044363	36.285	32.66	32.66	129.1	7,261.9
July	27.7	556130	36.844	40.00	40.00	84.5	7,346.4
August	22.7	996150	37.840	40.00	40.00	150.8	7,497.2
September	29.2	1239940	39.080	40.00	40.00	167.7	7,664.9
October	30.2	1262110	40.342	29.28	29.28	139.9	7,824.8
November	45.1	1916810	42.259	29.28	29.28	212.4	8,037.3
December	43.7	1917150	44.176	29.28	29.28	212.6	8,249.0
1993							
January	40.2	1795270	44.054	26.59	26.59	180.7	8,218.0
February	42.5	1590440	45.766	26.59	26.59	160.1	8,409.6
March	44.6	1927835	45.982	26.59	26.59	194.0	8,412.0

\*\* Starting with fourth quarter 1991, only single quarterly sample collected.

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Table 6  
Monthly and Cumulative Monitor Well Pumpage  
and Contaminant Recovery

## Recovery Well RW-2

Month	Average Monthly Pumping Rate (GPM)	Total Monthly Pumpage (gallons)	Total Cumulative Pumpage (gal. x1000)	Average Monthly Concentrations Total Benzene Species (mg/l)***		Total Benzene Species Recovered (kilograms)	Cumulative Total Benzene Species Recovered (kilograms)
				Total Benzene Species Recovered (mg/l)***	Total Monthly Total Recovered (kilograms)		
<b>1992</b>							
January	7.3	261606	7,393	155.47	154.0	7,516.0	
February	6.0	234370	7,627	155.47	137.9	7,653.9	
March	6.3	280594	7,908	155.47	165.1	7,819.0	
April	6.6	276761	8,185	350.00	366.7	8,185.7	
May	5.4	240328	8,425	360.00	318.4	8,504.1	
June	6.1	256334	8,661	360.00	339.9	8,844.0	
July	6.6	137100	8,819	281.25	146.0	8,989.9	
August	5.3	232210	9,051	281.25	247.2	9,237.1	
September	6.0	254060	9,305	281.25	270.5	9,507.6	
October	6.1	229770	9,535	348.67	303.3	9,810.9	
November	5.2	219690	9,754	348.67	290.0	10,100.8	
December	5.4	46520	9,801	348.67	61.4	10,162.2	
<b>1993</b>							
January	0	0	9,801	***	0.0	10,162.2	
February	0	0	9,801	***	0.0	10,162.2	
March	0	0	9,801	***	0.0	10,162.2	

\* value estimated

\*\* Starting with fourth quarter 1991, only single quarterly sample collected.

\*\*\* Sample not collected due to pump failure.

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Table 7

Monthly and Cumulative Monitor Well Pumpage  
and Containment Recovery

Recovery Well RW-3

Month	Average Monthly Pumping Rate (GPM)	Total Monthly Pumpage (gallons)	Total Cumulative Pumpage (gal. x1000)	Average Monthly Concentrations Total Benzene Species (mg/l)**			Total Benzene Species Recovered (kilograms)	Cumulative Total Benzene Species Recovered (kilograms)
				Monthly	Total	Recovered (kilograms)		
<b>1992</b>								
January	29.0	1251948	21,059	86.89	411.6	10,255.8		
February	23.2	867651	21,926	86.89	285.4	10,541.2		
March	18.2	682692	22,609	86.89	224.5	10,765.7		
April	19.2	745785	29,355	113.03	319.1	11,084.8		
May	20.5	736455	24,091	113.03	315.1	11,399.9		
June	32.5	749463	24,841	113.03	320.7	11,720.5		
July	22.6	454830	25,295	199.35	343.2	12,063.8		
August	24.7	1083990	26,379	199.35	818.0	12,881.8		
September	23.2	667430	27,047	199.35	503.6	13,385.4		
October	25.9	1023750	28,071	148.00	573.5	13,958.9		
November	24.1	971370	29,042	148.00	544.2	14,503.1		
December	24.6	1076690	30,121	148.00	604.3	15,107.4		
<b>1993</b>								
January	22.7	1012770	31,133	148.00*	567.4	15,674.8		
February	26.0	131200	31,265	148.00*	73.5	15,748.3		
March	0.0	0	31,265	148.00*	0.0	15,748.3		

\* Average monthly concentration is estimated. Quarterly sample not collected due to system malfunction.

\*\* Starting with fourth quarter 1991, only single quarterly sample collected.

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Table 8  
Monthly and Cumulative Monitor Well Pumpage  
and Contaminant Recovery

Recovery Well RW-4

Month 1992	Average Monthly Pumping Rate (GPM)	Total Monthly Pumpage (gallons)	Average Monthly Concentrations Total Benzene Species (mg/l)**		Total Benzene Species Monthly Total Recovered (kilograms)	Cumulative Benzene Species Recovered (kilograms)
			Total Cumulative Pumpage (gal. x1000)	Total Benzene Species (mg/l)**		
January	43.4	1937195	45,431	18.58	136.2	5,993.5
February	46.1	1923653	47,354	18.58	135.3	6,128.8
March	43.4	1937566	49,292	18.58	136.3	6,265.1
April	47.9	1242437	50,534	24.80	116.6	6,381.7
May	35.1	505414	51,040	24.80	47.4	6,429.2
June	54.5	2277614	53,318	24.80	213.8	6,643.0
July	60.4	1218510	54,536	19.15	88.3	6,731.3
August	48.9	2148430	56,684	19.15	155.7	6,887.1
September	48.3	2049920	58,734	19.15	148.6	7,035.7
October	47.6	1951850	60,686	22.54	166.5	7,202.2
November	62.7	2662050	63,348	22.54	227.1	7,429.3
December	60.0	2633610	65,982	22.54	224.7	7,654.0
1993						
January	56.5	2521990	68,504	21.87	208.8	7,862.8
February	65.8	2464810	70,969	21.87	204.0	8,066.9
March	64.0	2762760	73,731	21.87	228.7	8,295.6

\*\* Starting with fourth quarter 1991, only single quarterly sample collected.

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Table 9

**Monthly and Cumulative Monitor Well Pumpage  
and Contaminant Recovery**

**Recovery Well RW-5**

Month	Average Monthly Pumping Rate (GPM)	Total Monthly Pumpage (gallons)	Total Cumulative Pumpage (gal. x1000)	Average Monthly Concentrations Total Benzene Species (mg/l)**		Total Benzene Species Recovered (kilograms)	Cumulative Total Benzene Species Recovered (kilograms)
				Monthly	Total Benzene Species Recovered		
<b>1992</b>							
January	5*	229200	9,368	81.08	68.5	6,125.9	
February	5*	208800	9,577	81.08	64.1	6,189.9	
March	5*	115200	9,692	81.08	35.4	6,225.3	
April	5*	201600	9,894	178.10	135.9	6,361.2	
May	5*	209600	10,103	178.10	140.8	6,502.0	
June	5*	208800	10,311	178.10	140.8	6,642.7	
July	0.7	2125	10,313	30.8	1.7	6,644.4	
August	0.0	0	10,313	30.8	0.0	6,644.4	
September	0.0	0	10,313	30.8	0.0	6,644.4	
October	0.0	0	10,313	109.53	0.0	6,644.4	
November	0.0	0	10,313	109.53	0.0	6,644.4	
December	5*	36000	10,349	109.53	14.9	6,659.4	
<b>1993</b>							
January	0	0	10,349	180.57	0.0	6,659.4	
February	5*	129600	10,479	180.57	88.6	6,747.9	
March	5*	176400	10,655	180.57	120.6	6,868.5	

\* Average monthly pumping rate estimated. Actual flow rate could not be determined due to totalizer malfunctioning.  
\*\* Starting with fourth quarter 1991, only single quarterly sample collected.

Table 10

**Monthly and Cumulative Monitor Well Pumpage  
and Contaminant Recovery**  
**Recovery Wells RW-1, -2, -3, -4 and -5**

Month	Total Monthly Pumpage(gal x1000)	Total Cumulative Pumpage(gal x1000)	Total Benzene Species Recovered (kilograms)		Cumulative Total Benzene Species Recovered (kilograms)
			Monthly Recovered	Total Recovered	
<b>1992</b>					
January	4,760	113,511	906.8	906.8	35962.0
February	4,222	117,733	746.6	746.6	36708.6
March	4,026	121,759	688.1	688.1	37396.7
April	3,318	125,077	1043.6	1043.6	38440.3
May	2,695	127,772	945.8	945.8	39386.1
June	4,537	132,309	1144.2	1144.2	40530.3
July	2,371	134,680	663.7	663.7	41194.0
August	4,461	139,140	1371.8	1371.8	42565.8
September	4,211	143,352	1110.4	1110.4	43676.3
October	4,467	147,819	1183.2	1183.2	44859.5
November	5,770	153,589	1273.7	1273.7	46133.2
December	5,712	159,301	1117.8	1117.8	47251.0
<b>1993</b>					
January	3,535	162,836	776.2	776.2	48027.2
February	2,726	165,562	366.1	366.1	48393.3
March	2,939	168,501	349.3	349.3	48742.6

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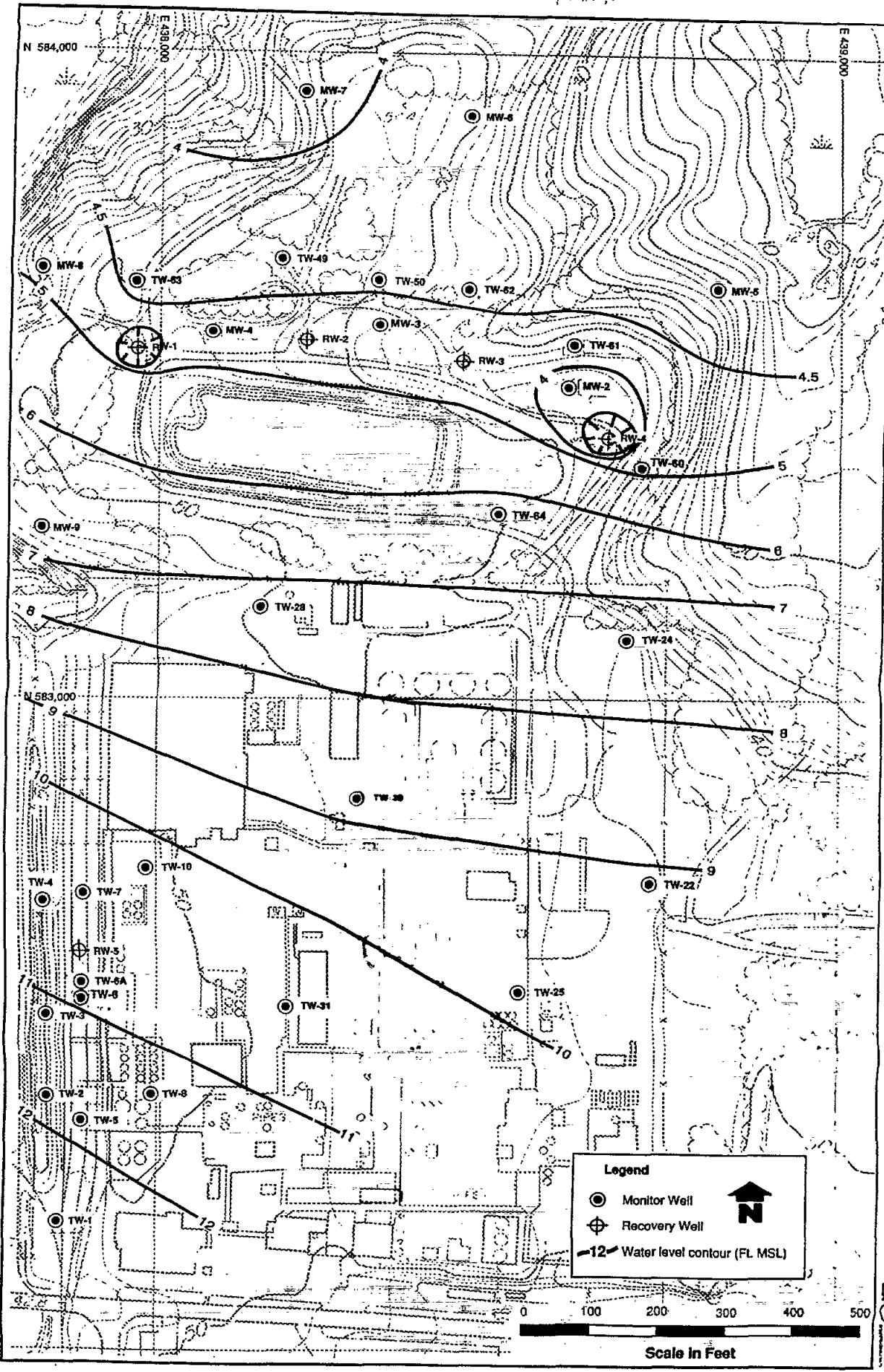


FIGURE 1 WATER LEVEL CONTOUR MAP  
24 MARCH, 1993

AR 308053

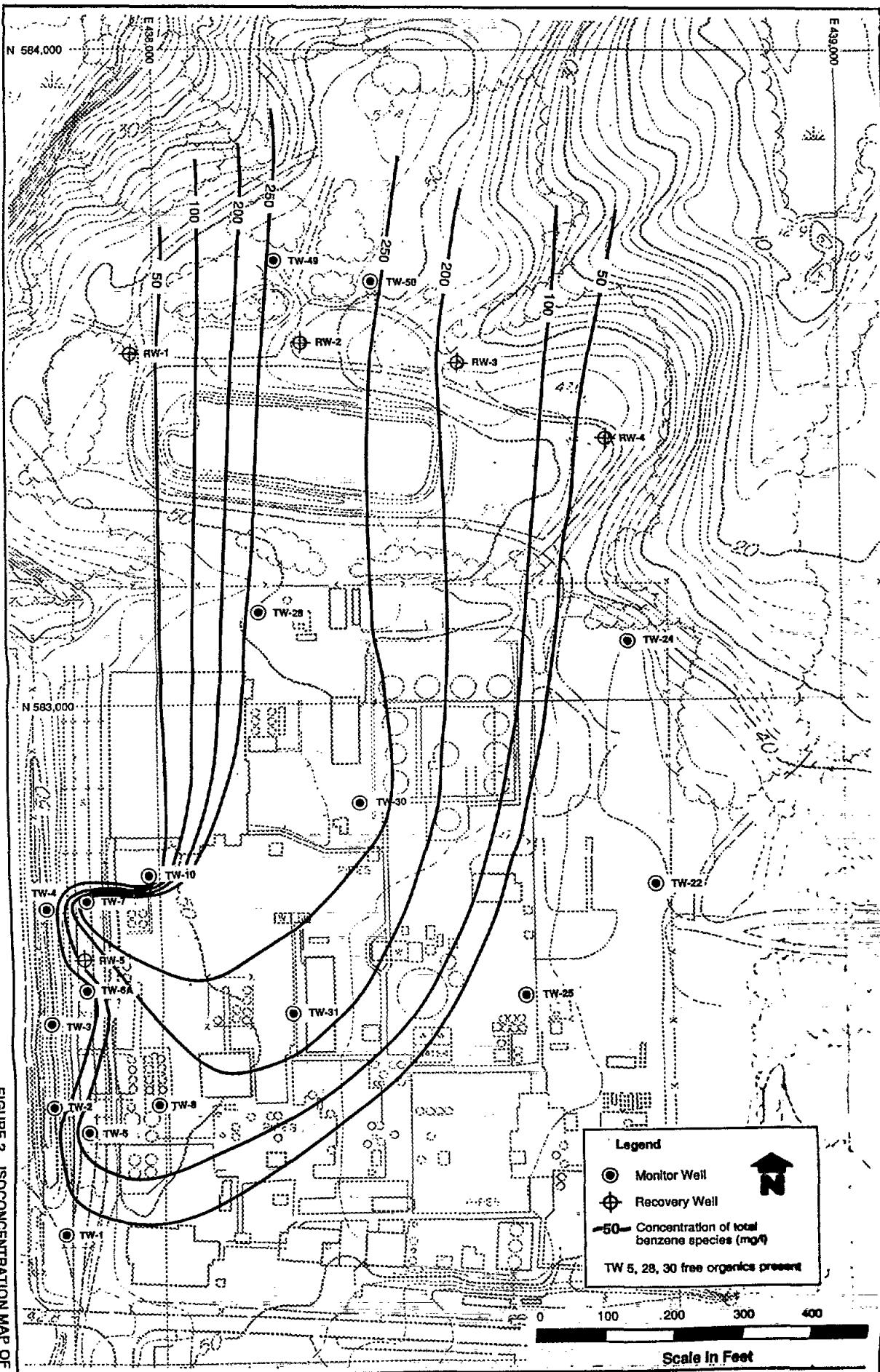


FIGURE 2 ISOCONCENTRATION MAP OF  
TOTAL BENZENE SPECIES  
11 MARCH, 1983

AR 308054